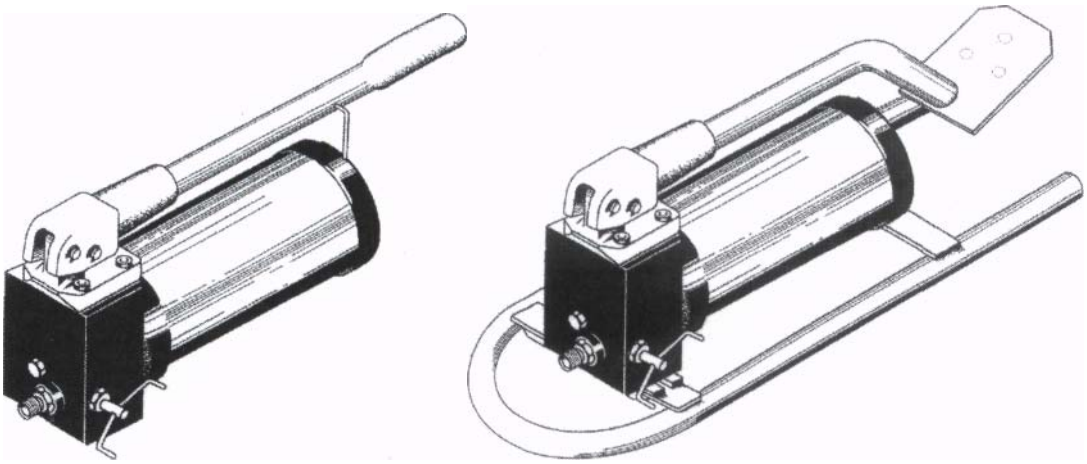
Hydraulic Power Units of HA800 and HA801 Series



Hydraulic units of 800 and 801 series are high-pressure sources of pressure energy. Their design is identical but they differ in operation; the 800 series units are operated by foot lever, the 801 series units by hand lever.

1. Design and function

Hydraulic foot or hand operated unit HA 800, or 801 consists of a two-stage piston pump, reservoir and foot or hand operated lever. The reservoir is fitted with a filling plug with aerating valve and an oil level gauge. The reservoir, lever fork and a flange of pump case are made of stainless steel, case of the pump is made of high-strength light alloy. Duralumin parts are eloxal coated, steel parts are zinc coated. In pump case there are suction and delivery valves, 1st stage unloading valve, pressure relief valve and a mechanically operated discharge valve.

In addition, in types HA 800-1 and HA 801-1 units, the inlet fitting "T" is connected with the reservoir via bore through a check valve.

HA 800-2 and HA 801-2 units are delivered with mounted hand operated four-way three-position directional control valve and that is why they are not equipped with a discharge valve. Units of 800 and 801 series serve as portable, lightweight sources of hydraulic pressure energy for driving various hydraulic tools, rescue tools or various hoisting devices. HA 800-0 and 801-0 types drive tools that contain a single-acting hydraulic cylinder (cutting and compressing devices, pressing heads etc.) Types HA 800-1 and HA 801 -1

work with tools having double-acting hydraulic cylinder (rescue shears, spreaders etc.)

Function of the unit is as follows: when the lever is moving upwards, fluid from the reservoir is sucked into cylinders of the first and second stages through suction valves 3 and 4. When the lever is forced down, fluid from both cylinders is delivered through delivery valves 5 and 6 to the outlet port R As soon as the 1 st stage reliéf pressure is reached, spool of the unloading valve 7 shifts and connects the 1st stage discharge with the reservoir. Now only the 2nd stage piston supplies fluid to the outlet port. Adjustable pressure relief valve 8 limits the maximum outlet pressure. Mechanically operated discharge valve 9 when reset, connects the unit outlet with the reservoir.

2. Technical data

First stage:	displacement	25,4.$10^{-6}$$m^3$ /per stroke
	maximum pressure	5MPa
Second stage:	force on lever	max. 400 N
	displacement	1,8.$10^{-6}$$m^3$ /per stroke
Reservoir capacity:	maximum pressure (relief valve setting)	85MPa
	force on lever	max. 500 N
	total	1,75.$10^{-3}$$m^3$
	charge recommended	1,3.$10^{-3}$$m^3$
Mass:	HA 800-0, HA	8,7kg
	800-1 HA 800-2	10,1kg
	HA 801-0, HA	7,4kg
	801-1 HA 801-2	8,8kg

3. Installation

Before installing the unit into hydraulic circuit, it is necessary to remove the protecting cap from fitting P (outlet) and from fitting T (reservoir) - if installed. The unit is connected with hydraulic circuits by means of hoses or pipes. After disconnecting the unit, the fittings must always be immediately plugged with protecting caps. The foot operated unit HA 800 has its own frame and does not have to be specially fixed before use. However, before being used, the hand operated unit HA 801 should be fixed to a suitable base or a machine frame by means of holes and bolts.

4. Working and operating conditions

Temperature:	working fluid	-20°Cupto + 60°C
	Ambient	-20°Cupto + 60°C
Fluid	mineral hydraulic oils:	
	ISO 6743/4type HM (DIN 51 524 part2-HLP), class ISO VG 10,22,32,46	
	ISO 6743/4 type HV(DIN 510524 part 3-HVLP), class ISO VG 15,32,46	
Viscosity:	recommended range	(20 to 70) $.10^{-6}m^2s^{-1}$
	maximum range	(7 to 400) $.10^{-6}m^2s^{-1}$
Class of fluid purity according to ISO 4406		16/13

The unit is usually operated in horizontal position. Permissible inclination of the unit in transversal direction is ±45°; in longitudinal direction with hydraulic pump body upwards, the inclination may be by max.10°; with hydraulic pump body downwards, arbitrary. The unit is filled with recommended fluid in vertical position after unscrewing the plug in the rear cover. The right quantity of fluid in the tank is read from the oil gauge in the rear cover; the fluid level should reach min. to the gauge line. In the first connecting the unit to the hydraulic circuit with long hoses and in more frequent exchanges of the tools (cylinders), it is necessary to monitor the quantity of fluid in the reservoir and replenish the fluid in time. Exchanging the fluid in the reservoir depends on operating intensity, the minimum interval is once in three years. It is recommended to use fresh fluid and fill it into the reservoir through the filter with filtration rating 10 μm. The units do not require special maintenance during operation, only from time to time, it is necessary to grease the pins of the lever fork.

5. Delivery conditions

Each product is delivered with Certificate of quality and completeness, and if required, also with Statement of conformity. Spare parts are not delivered with the product. Service and repairs are carried out by the manufacturer or an authorised organization.

6. Type code

HA x x x – x x

material of body and rear cover:
without designation Al alloy (basic type)
1 nodular cast iron (to special order only)

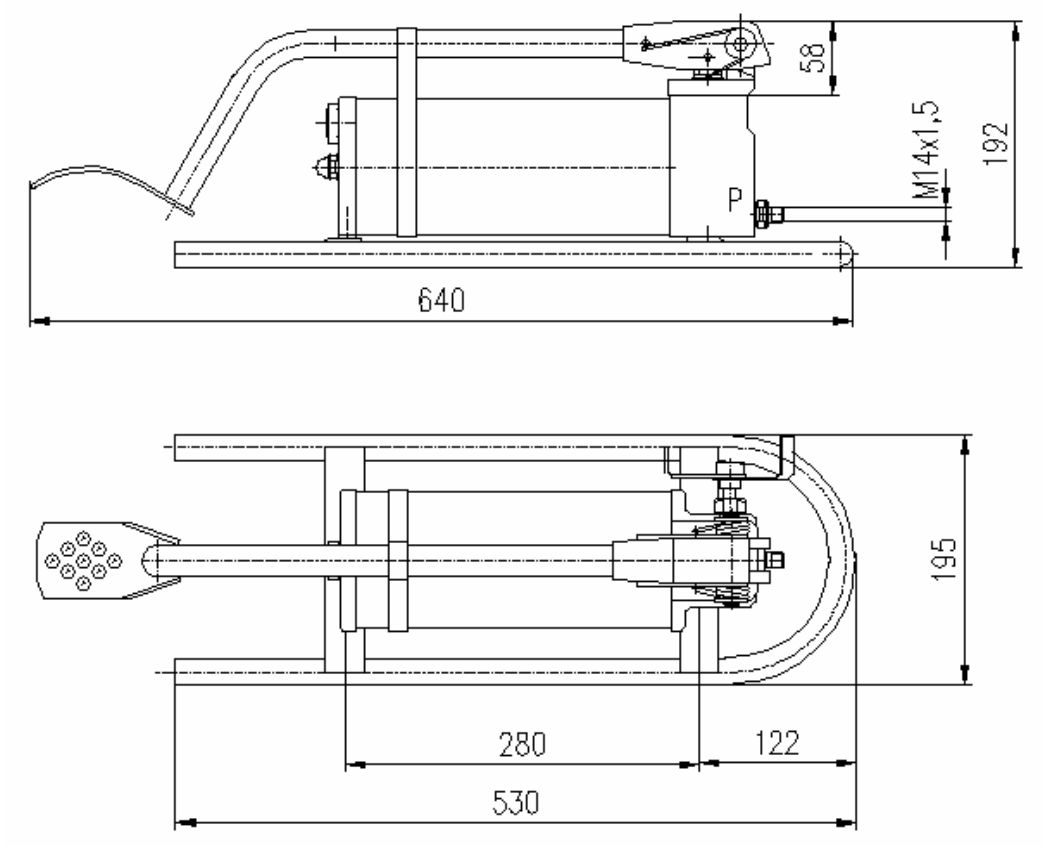
0 single way type (P port)
1 two way type (P, T ports)
2 hand operated directional control valve 4/3

700 one-stage hand operated hydraulic power unit (special product)
800 two-stage foot operated hydraulic power unit
801 two-stage hand operated hydraulic power unit

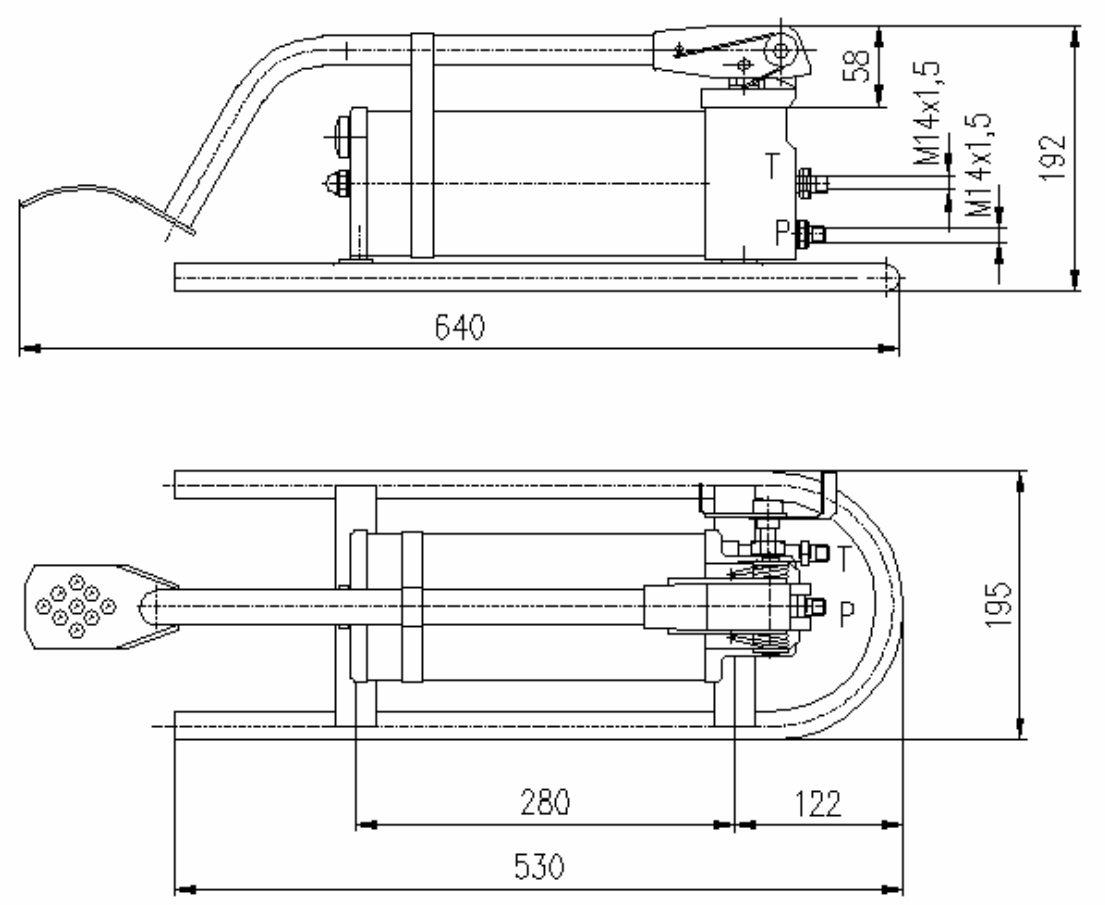
basic code

Ordering example: Hand operated two stage hydraulic power unit (basic type) with directional control valve of **HA 801-2** type.

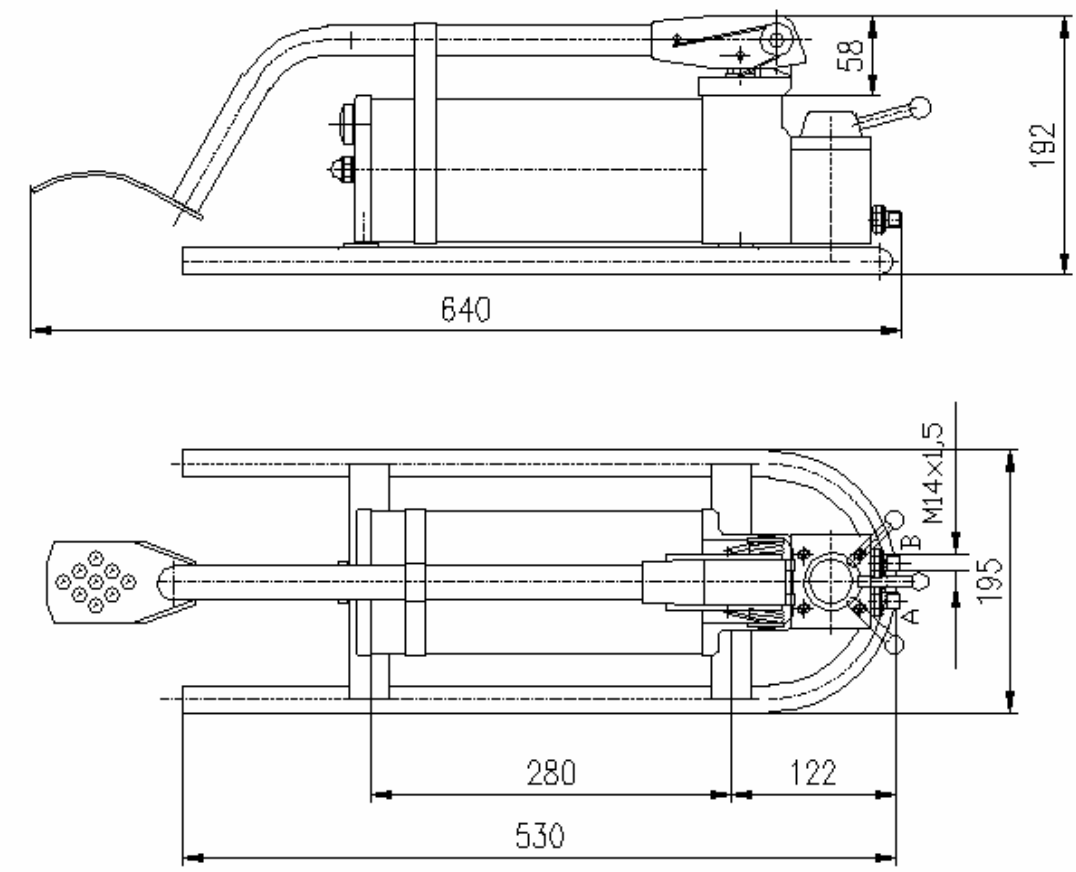
7. Dimensions



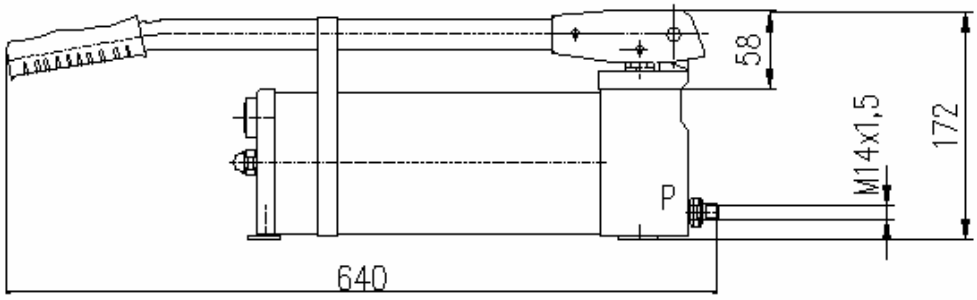
HA 800-0

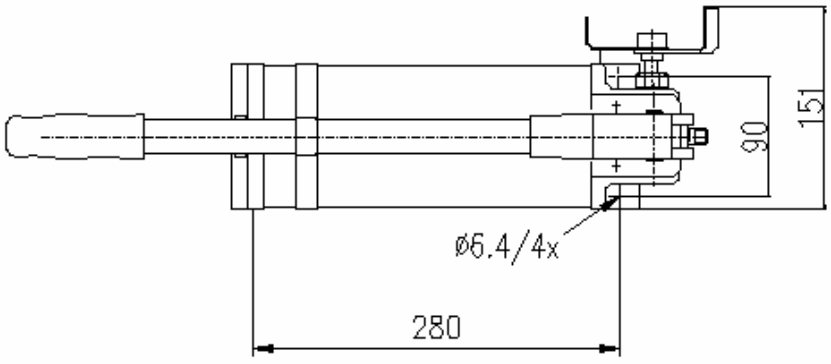


HA 800-1

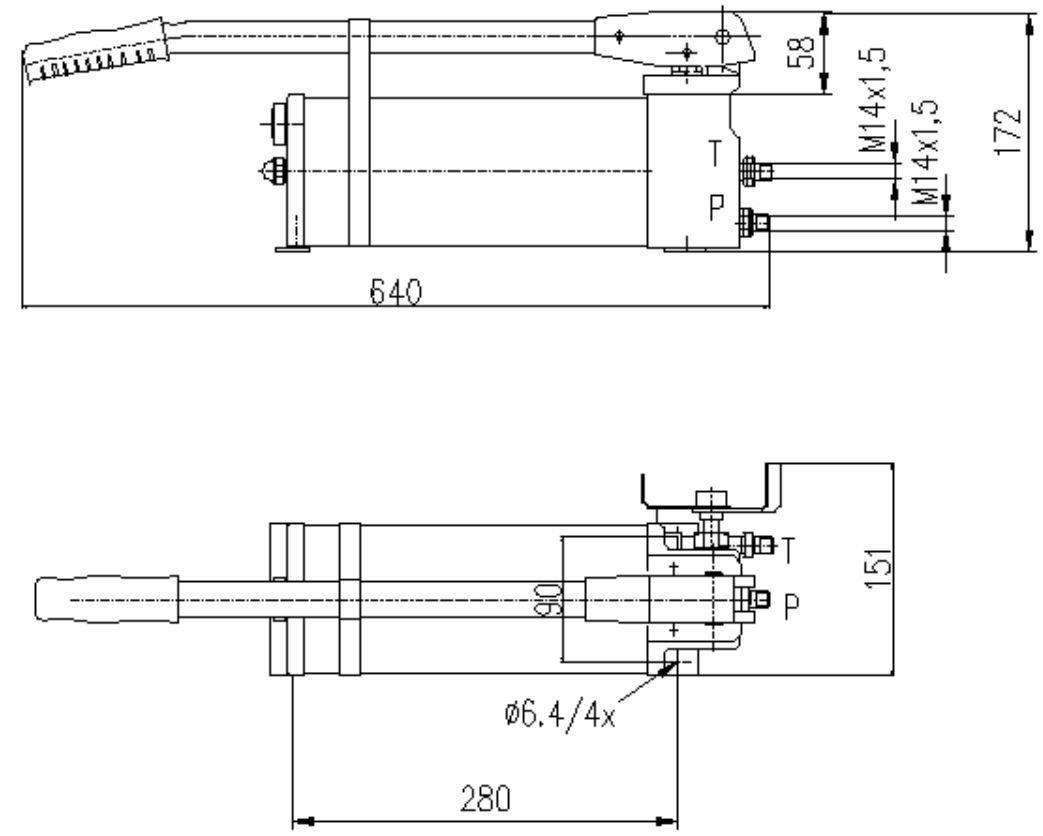


HA 800-2

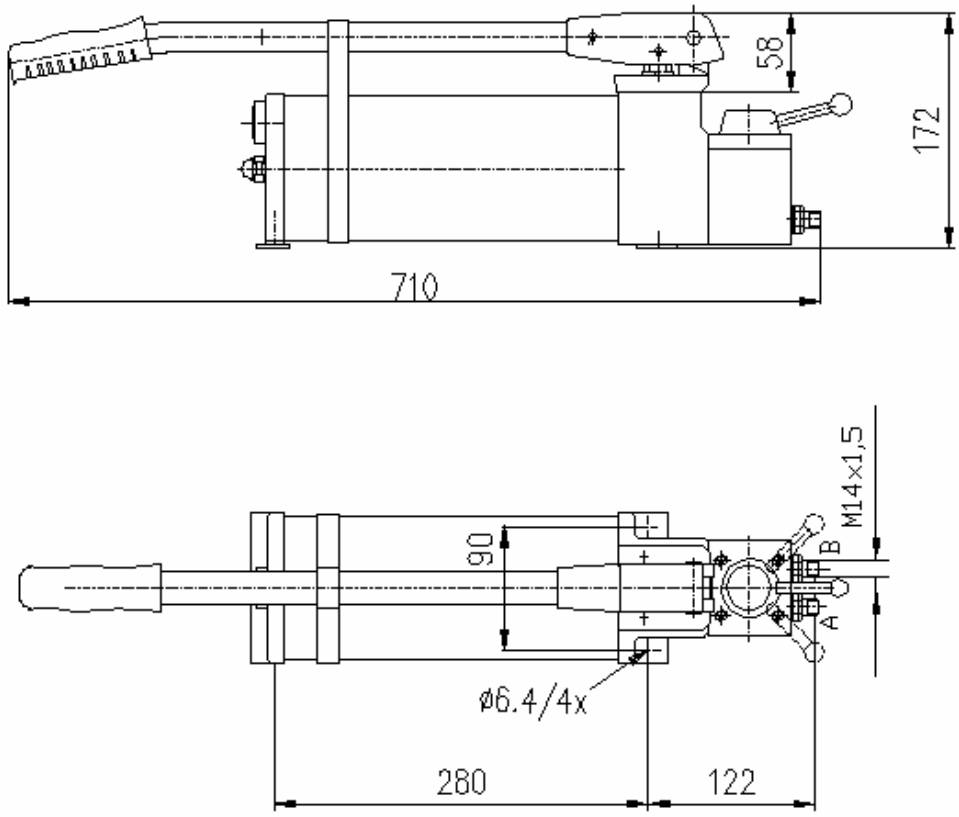




HA 801-0



HA 801-1

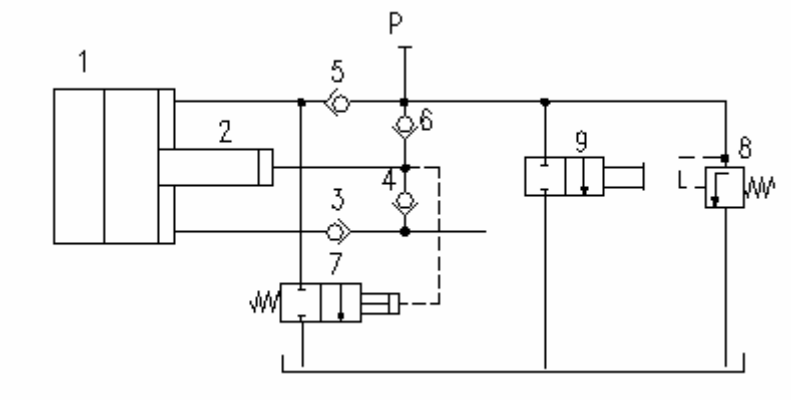


HA 801-2

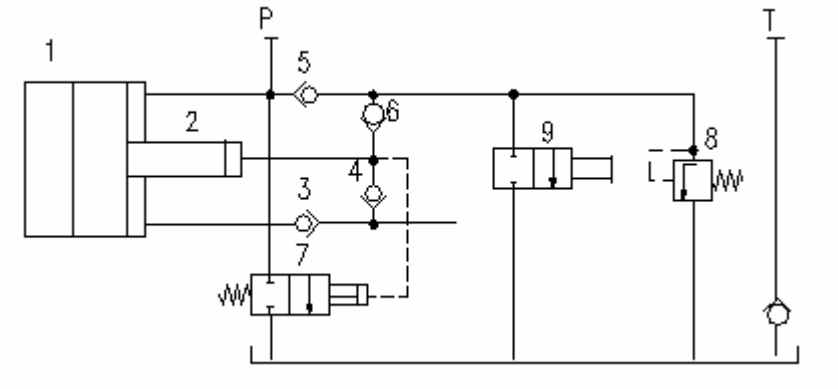
8. Hydraulic diagram

Legend:

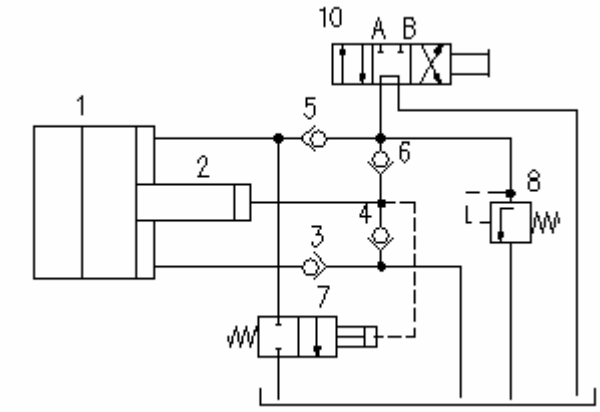
1 - 1 st stage piston
2 - 2nd stage piston
3 - 1 st stage suction valve
4 - 2nd stage suction valve
5 - 1st stage delivery valve
6 - 2nd stage delivery valve
7 - 1 st stage unloading valve
8 - pressure relief valve
9 - discharge valve
10 - directional control valve 4/3
P - outlet port
T - inlet port (reservoir)



HA 800 - 0, 801 – 0



HA 800 -1, 801 -1



HA 800 - 2, 801 – 2

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